Marine Corps Modeling & Simulation (M&S)
Integrated Process Team (IPT)
Master Plan

April 28, 2009

FOREWORD

This plan is needed to remove obstacles to efficient use of M&S in the Marine Corps. It is issued under the authority of Marine Corps Order (MCO) 5200.28, Marine Corps M&S Management, dated April 3, 2008.

This plan is applicable to the members of the Marine Corps M&S IPT. These members include the Marine Corps M&S Management Office (MCMSMO) and the six organizations that provide M&S community representation as indentified in MCO 5200.28.

The Marine Corps M&S IPT Master Plan provides an action plan to improve Marine Corps M&S at an enterprise level across the service. Eighteen tasks are identified to achieve that intent. The tasks are designed to:

- Foster widely-needed M&S capabilities beyond the reach of individual programs
- Improve collaboration of Marine Corps M&S communities
- Empower Marine Corps M&S community leads by removing systemic obstacles, identifying new options for approaching tasks, and helping support widely-shared needs.
- Increase the interoperability, commonality, and reuse of M&S tools, data, and services

These tasks support implementation of DoDD 5059 and MCO 5200.28. Each task identifies organizational responsibilities, products, and completion goals to improve Marine Corps M&S. MCMSMO is responsible for the implementation of this plan and recommend adjustments over time.

Dr. George Akst, SL
Senior Analyst, MCCDC
Marine Corps M&S Lead

CONTENTS

1. PURPOSE

This enterprise level document identifies Marine Corps M&S level objectives and tasks common to all Marine Corps M&S communities and provides a working plan for the Marine Corps Modeling & Simulation (M&S) Integrated Process Team (IPT). Marine Corps Order 5200.28, Marine Corps Modeling & Simulation (M&S) Management, establishes the Marine Corps M&S Management Office (MCMSMO) as the lead for the IPT and six Marine Corps M&S communities: Acquisition, Analysis, Experimentation, Planning, Testing and Training. MCO 5200.28 further directs MCMSMO to lead an effort to produce a Marine Corps M&S Master Plan that will promote interoperability, commonality, and reuse of M&S tools, data, and services across the Marine Corps M&S communities and this plan meets that intent. As MCO 5200.28 states, Marine Corps M&S management is decentralized to the six communities and therefore it is beyond the scope of this master plan to identify community-centric requirements, which are best left to the subject matter experts residing in each community. This Marine Corps M&S IPT Master Plan identifies specific objectives and supporting tasks that work towards increased collaboration and effectiveness across the Marine Corps M&S communities through improved interoperability, commonality, and reuse of M&S tools, data, and services.

2. ROLES AND ORGANIZATIONAL RESPONSIBILITIES

The organization of Marine Corps M&S mirrors that of DoD M&S with six communities working together to resolve issues and fix problems common to all members. More detailed, community-specific M&S planning is left to each community lead.

2.1. MARINE CORPS M&S MANAGEMENT OFFICE

MCMSMO is responsible for the oversight of this plan and monitors the progress toward completion of the tasks in this plan by requesting periodic updates from the organizations leading the tasks. The director of MCMSMO chairs the IPT. MCMSMO shall report status to the MCCDC Senior Analyst who acts as the Marine Corps overall lead for M&S and recommend any appropriate modification or redirection of IPT efforts. MCMSMO will coordinate revisions and objective updates with the Marine Corps M&S IPT and with the approval of the MCCDC Senior Analyst.

2.2. MARINE CORPS M&S INTEGRATED PROCESS TEAM

The Marine Corps M&S IPT is comprised of representatives from each of the six Marine Corps M&S Communities and MCMSMO. The supporting organizations for each community are listed in the following table. IPT members will lead tasks based on organizational missions and functions, or expressed preferences. Task leads shall plan and execute their assigned actions, coordinating with supporting organizations to realize a unified, efficient approach. The lead organizations should identify key activities, output products, resources, and a schedule of milestones to satisfy the action. Lead organizations shall provide status reports upon request of MCMSMO or M&S IPT members.

M&S Community	Marine Corps M&S Community Lead
Acquisition	Marine Corps Systems Command (MCSC)
Analysis	Operations Analysis Division (OAD), MCCDC
Experimentation	Marine Corps Warfighting Laboratory (MCWL), MCCDC
Planning	National Plans; Plans, Policies, & Operations (PP&O), HQMC
Testing	Marine Corps Operational Test & Evaluation Activity (MCOTEA)
Training	Training and Education Command (TECOM), MCCDC

3. OBJECTIVES

This plan identifies eighteen tasks organized under five overarching objectives. Each task is constructed to resolve specific Marine Corps M&S-related issues and deficiencies. Each task includes a rationale to describe the associated issue/deficiency and a discussion of work needed to guide execution. Task lead organizations and supporting organizations are identified for each task. The products identified with each action represent the expected outcome. Tasks needed and products listed could be changed as the task lead develops a plan to meet the deficiency. A completion date is associated with each task identified in the plan. This date should be considered by lead organizations in planning their execution of assigned actions. Inability to complete an action by the desired date does not negate its importance and efforts to complete the action should continue with a possible revision of dates if necessary.
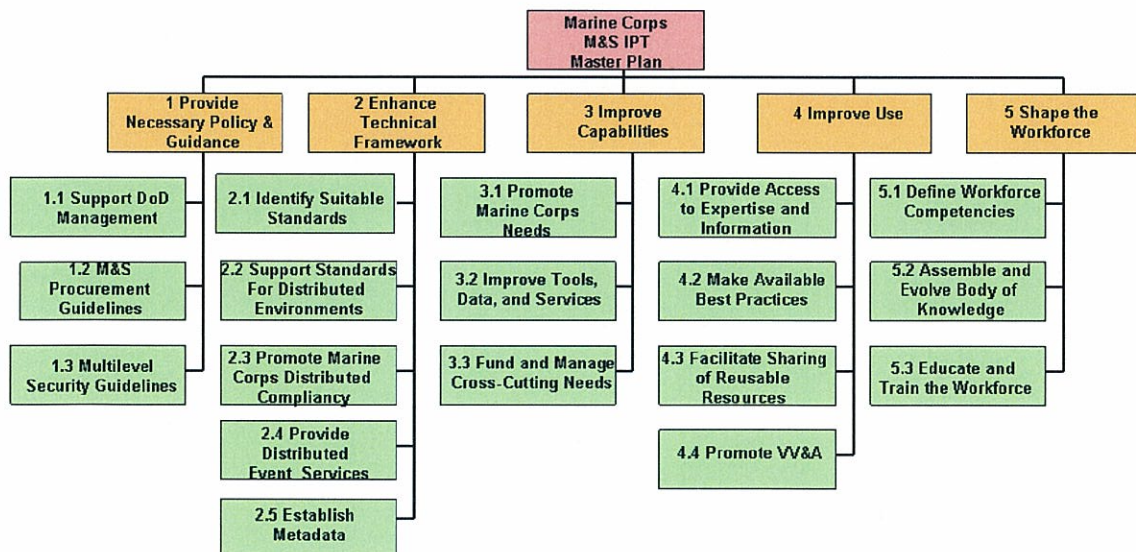
Figure 1: Alignment of tasks with objectives.

3.1. OBJECTIVE 1: PROVIDE NECESSARY POLICY AND GUIDANCE

3.1.1. TASK 1.1: Support DoD M&S Management.

DEFICIENCY: A number of M&S-related activities are ongoing across the Department of Defense. The Department has varying objectives, policies, and guidance around which it conducts M&S activities. The Marine Corps needs to maintain an awareness of these DoD activities, represent Marine Corps M&S interests, and when feasible coordinate Marine Corps M&S activities with DoD and sister service counterparts. DoD M&S management and linkage to the user customer base, to include the Marine Corps, needs to continue to improve in order to promote the reuse, commonality, and interoperability of M&S tools, data, and services.

WORK NEEDED: MCMSMO is responsible for strengthening M&S in the Marine Corps and representing the Marine Corps in DoD M&S management forums. The Marine Corps M&S communities have the same responsibility for their respective DOD M&S communities. The newly established Marine Corps M&S management structure will address Marine Corps-level and DoD-wide M&S issues through well-known standardized structures and processes. MCMSMO and the Marine Corps IPT members will ensure Marine Corps interests and gaps are well represented in DoD M&S bodies. Finally, MCMSMO and the IPT will seek opportunities to leverage cross-cutting activities with DoD and sister service M&S counterparts.

LEAD: MCMSMO

SUPPORT: Marine Corps M&S IPT

PRODUCTS: Provide effective, persistent Marine Corps participation in DoD-wide M&S management activities to address cross-cutting issues and coordinate actions. MCMSMO and the IPT members will brief the IPT body on activities of possible interest to the group since the last IPT meeting.

COMPLETION GOAL: Continuous

3.1.2. TASK 1.2: M&S Procurement Guidelines

DEFICIENCY: There are insufficient guidelines regarding contracting for M&S and the data it requires or produces. Organizations often leave M&S planning, use, and ownership to prime contractors. Government organizations are often unaware of contractor attributes that are indicators of M&S capability maturity and are, therefore, useful criteria in evaluating proposals. Rarely is early consideration and contractual direction specifically intended to provide access to, or reuse of, models and data across the life cycle.

WORK NEEDED: The recommended Request for Proposal (RFP) language and contract provisions should address: M&S strategy; representation requirements; M&S tool sources; ownership and maintenance; data sources and government rights; Verification, Validation, and Accreditation (VV&A); user support; access control; and metrics and documentation requirements, all across the system life cycle. The source selection criteria guidance should address those contractor attributes that have a direct relationship to successful M&S use.

LEAD: MCSC

SUPPORT: Marine Corps M&S IPT

PRODUCTS: Propose initial M&S-related guidelines for solicitations, source selection, and contracting. Develop best practices guide for Marine Corps M&S users and procurement officials. Identify efforts in DoD M&S that provide similar guidelines.

COMPLETION GOAL: 2nd Qtr FY10

3.1.3. TASK 1.3. Provide Multilevel Security Guidelines

DEFICIENCY: Establishing multiple-organization M&S networks with different levels of security presents a common and persistent problem with timely security accreditation of the entire M&S federation. This issue arises within both industry and government whenever multiple accreditation authorities have jurisdiction over various parts of the endeavor.

WORK NEEDED: When assembling a distributed environment (i.e., federation), simulators and simulations involved often have different levels of security classification that leads to further complexity in accrediting the M&S environment. Separate independent accreditations do not add up to a federation accreditation. Guidance should be published to identify a coordinated approach under a lead accreditation authority. Practical guidelines are also needed to walk the potential M&S manager through the M&S federated network information assurance certification issues and offer "how to" guidance that will reduce duplication and lower the time and expense to attain and maintain a federation M&S security accreditation.

LEAD: MCSC

SUPPORT: Marine Corps M&S IPT

PRODUCTS: Produce practical guidelines and recommended technical solutions for information assurance certification and accreditation of M&S federated networks containing multiple levels of security.

COMPLETION GOAL: 1st Qtr FY11

3.2. OBJECTIVE 2: ENHANCE THE TECHNICAL FRAMEWORK FOR M&S

3.2.1. TASK 2.1. Identify Suitable Standards

DEFICIENCY: A set of standards needed to facilitate M&S across Marine Corps organizations is not yet established. For instance, there is no standard modeling language (like Unified Modeling Language (UML)) for capturing the full range of information critical to system engineering, such as system configuration, behavior, requirements traceability, test cases, and verification results. There is also no standard format for exchanging this information. Developing Marine Corps-unique standards for such information would be a duplicate effort to an existing Navy or DoD standard and not be in keeping with the goals of improving efficiencies and effectiveness.

WORK NEEDED: Support development of open commercial and non-proprietary standards for M&S. The Marine Corps should participate in and influence promising commercial standard development efforts. Examples include SysML and AP-233 projects which address deficiencies in the area of systems engineering.

LEAD: MCSC

SUPPORT: MCMSMO and MCOTEA

PRODUCTS: An identified set of standards appropriate for use by the Marine Corps.

COMPLETION GOAL: Continuous

3.2.2. TASK 2.2: Support Standards for Distributed Environments.

<u>DEFICIENCY</u>: Appreciation of the need for distributed environments that are responsive to user identified needs is increasingly widespread across the Department of Defense and Marine Corps. Such environments are useful to support systems engineering, testing, training, experimentation, course of action analysis, and mission rehearsal. It is desirable that these environments be readily composable from the complete inventory of simulations, ranges, laboratories, networks, and utilities controlled by the Department of Defense. Because the owners of these assets would have difficulty complying with multiple competing standards, defense community-wide standards are needed whenever practical. These standards may include simulation technical architecture, object models, time management, semantic interoperability, data interchange formats, and encryption standards.

<u>WORK NEEDED</u>: The number of stakeholders in such a readily available distributed environment capability is great. Initiatives in this area include: the Joint Service Battlespace Environment (JSBE), Test and Training Enabling Architecture (TENA), Joint Mission Environment Test Capability (JMETC), Joint National Training Capability (JNTC), and the Network-Centric Operations Industry Consortium (NCOIC). Adopting DoD-wide standards for distributed environments must be responsive to Marine Corps M&S user's identified needs. No single community can decide this. Therefore, a body with broad representation must lead this action.

<u>LEAD</u>: TECOM

<u>SUPPORT</u>: MCOTEA, MCWL

<u>PRODUCTS</u>: Provide recommended standards for Marine Corps distributed environments participation.

<u>COMPLETION GOAL</u>: 4th Qtr FY10

3.2.3. TASK 2.3: Promote Marine Corps Distributed Compliancy

<u>DEFICIENCY</u>: Individual Marine Corps programs own and manage most of the assets that are candidates for participation in distributed environments. Programs set the requirements to fund, develop, operate, evolve, and manage these assets. They are thus the logical parties to be responsible for bringing these assets into compliance with the distributed environment standards established under the preceding action. Funding for this will be dependent on individual program interests, but should be greatly encouraged by either central funding or the prospect of earning revenue for their use by others.

<u>WORK NEEDED</u>: The success of this action is almost totally dependent on developing consensus regarding optimal DoD-wide standards for distributed environments and the development of strategies to provide the resources necessary to enable fielded systems to be in compliance with selected standards. The extent of compliance is left to the commands to decide based on requirements, capability, and business case analysis.

<u>LEAD</u>: MCSC and TECOM

<u>SUPPORT</u>: Marine Corps M&S IPT

<u>PRODUCTS</u>: Report on current distributed initiatives (architectures and protocols), impacts to each community, and recommend Marine Corps compliance strategy.

<u>COMPLETION GOAL</u>: Continuous

3.2.4. TASK 2.4. Provide Distributed Event Services

DEFICIENCY: To plan, develop, integrate, and execute a distributed environment event requires technical services by experts. Most potential users of a distributed environment, such as program managers, will need to have an organization they can turn to for such assistance (on a customer-funded basis).

WORK NEEDED: Because the number of such events that are in planning or execution at any one time is large and contention for these services may be considerable, business logic may dictate that several Marine Corps programs establish their own service organizations that provide services, possibly for a fee. An Intra-Marine Corps working group with rotating leadership could be established to identify consumers of information for distributed events, define types of services needed, alternatives to meet those needs, priorities, and resource leveraging opportunities. A business case and initial set of potential customers for a fee-based technical service to plan and conduct distributed events is needed. Alternatively, this may be an area where commercial services may be viable. Discretion in this matter is left with the lead agent.

LEAD: TECOM

SUPPORT: MCWL

PRODUCTS: Report on Distributed Event Services Plan that ensures the availability of services to help plan and conduct distributed events.

COMPLETION GOAL: 4th Qtr FY10

3.2.5. TASK 2.5. Establish Metadata

DEFICIENCY: Although many M&S resources (e.g., models, simulations, databases, utilities, networks, computing platforms, laboratories, ranges, technical services) are reusable for various related purposes, relatively little reuse occurs. There are many obstacles to reuse, including difficulty discovering the existence of such assets. Although there are many M&S resource repositories and registries across the Department of Defense, there is no effective way to search them for a particular type of resource (e.g., simulations that represent a particular surface-to-air missile, or performance data for the F-18). Standard templates of descriptive information (metadata) about such resources would aid in automated searches for such resources.

WORK NEEDED: The nature of the metadata to be captured in this template is largely different from the types of information in a metamodel. For instance, the reusable resource metadata template will focus on capability descriptions, not pedigree, and will have points of contact (POCs) for obtaining use of the resource, vice the POCs involved in producing information. As well, metadata template(s) will be complemented by a specific enumeration of the allowable entries in the various fields to facilitate searching by keywords. This action is under the purview of the M&S Community of Interest (COI) Metadata Focus Group.

LEAD: MCMSMO

SUPPORT: Marine Corps M&S IPT

PRODUCTS: Identify DoD product or support current DoD initiatives that establish a standard template of key characteristics (metadata) to describe reusable M&S resources.

COMPLETION GOAL: 3rd Qtr FY10

3.3. OBJECTIVE 3: IMPROVE MODEL AND SIMULATION CAPABILITIES

3.3.1. TASK 3.1: Promote Marine Corps M&S Needs

DEFICIENCY: The Department of Defense, under the leadership of the Director of Defense Research and Engineering, has a defined process for coordinating its investments in M&S. Likewise, the Secretary of the Navy, through the Navy M&S Management Office, has a process for deciding its investments in M&S. The Marine Corps needs a coherent voice in these processes to ensure its needs receive appropriate consideration.

WORK NEEDED: Establish processes to ensure Marine Corps needs are reflected in DoD and SECNAV M&S priorities. A means to request, receive, and consider the Marine Corps recommendations must be established. There must be a related internal Marine Corps process to solicit, integrate, and prioritize the needs that are identified. To provide feedback to submitters and foster continued involvement in this process, some means of tracking the outcome of individual organization and Marine Corps community inputs must be provided with those results made available broadly.

LEAD: MCMSMO

SUPPORT: Marine Corps M&S IPT

PRODUCTS: A method to capture and prioritize Marine Corps M&S needs.

COMPLETION GOAL: 2nd Qtr FY10

3.3.2. TASK 3.2: Improve Tools, Data and Services

DEFICIENCY: Although the importance and use of M&S tools (models, simulations, and utilities) is expanding across the Marine Corps, relatively few persons have a good grasp of the process and principles that should be followed when developing such tools. In conjunction with IEEE standardization of the High Level Architecture (HLA), the Department of Defense has identified a recommended practice for federation development and execution, but no equivalent best practice exists for the development of individual M&S tools. Whether conducting such a development or overseeing a contractor's efforts to do so, Marine Corps M&S professionals need to understand best practices for developing M&S tools.

WORK NEEDED: The OSD/AT&L systems engineering process provides a suitable framework for developing a model or simulation. However, this must be augmented by Marine Corps M&S-particular considerations, such as conceptual modeling; agile programming techniques; authoritative data availability and transformation; coherency with other models and simulations; simulation time management; verification; and validation. The needed information exists but is scattered and hard to identify. Once assembled, a thorough review will be necessary to ensure correctness and build acceptance.

LEAD: MCMSMO

SUPPORT: Marine Corps M&S IPT

PRODUCTS: Marine Corps best practices publication will be produced and made available via the MCMSMO website. This document will define and foster sound practices for efficient development and evolution of credible M&S tools, incorporating user-defined requirements with appropriate verification and validation.

COMPLETION GOAL: 3rd Qtr FY10

3.3.3. TASK 3.3: Fund and Manage Cross-Cutting Needs

Fund and manage the development of high-priority, broadly-needed Marine Corps M&S tools, data and services.

DEFICIENCY: Certain Marine Corps M&S needs are common to multiple communities and organizations. Common needs may go unrecognized without cross-community communication. The Marine Corps M&S IPT provides a venue for these high-priority gaps to be identified. Central funding for Marine Corps M&S does not exist, which limits the ability for cross-cutting M&S gaps to be filled. The potential funding demands for central management of broadly-needed M&S tools may be beyond what the Marine Corps budget can reasonably support. As well, this management concept warrants careful examination before adopting it on a large scale. Hence one or more pilot projects are warranted to explore this concept.

WORK NEEDED: The M&S IPT should prioritize the cross-cutting gaps that are most appropriately funded and managed centrally. From the prioritized list of broadly-needed M&S tools, data or services, one or two should be selected. Funding for these projects should be sought through Marine Corps community sponsorship, unfunded requirement requests through MCCDC, or DoD M&S Steering Committee funding. MCMSMO should also work for POM 12 funding.

LEAD: MCMSMO

SUPPORT: Marine Corps M&S IPT

PRODUCTS: Prioritized list of common M&S needs.

COMPLETION GOAL: Continuous

3.4. OBJECTIVE 4: IMPROVE MODEL AND SIMULATION USE

3.4.1. TASK 4.1: Provide Access to M&S Expertise and Information

DEFICIENCY: Marine Corps organizations lack staff members with M&S expertise. Making these organization's staffs more knowledgeable regarding M&S strengths and weaknesses, applicable standards, potentially available reusable resources, lessons from other M&S efforts, and options to obtain technical assistance would better equip them to use M&S in support of their objectives.

WORK NEEDED: An M&S education web page should be developed on the MCMSMO web site. This web page should provide links to resources for different resident and online education, online informational sites, conferences and workshops. These resources should be evaluated by current Marine Corps M&S users to recommend the most valuable resources. Available assist visits from MCMSMO, OSD personnel or other M&S experts should be identified.

LEAD: MCMSMO

SUPPORT: Marine Corps M&S IPT

PRODUCTS: M&S educational resource web page to provide Marine Corps M&S users ready access to M&S expertise and information about M&S capabilities and gaps, reusable resources, lessons-learned, implementation plan, etc.

COMPLETION GOAL: 1st Qtr FY10

3.4.2. TASK 4.2: Make Available M&S Best Practices

DEFICIENCY: Marine Corps staffs and contractors often lack the expertise to develop a detailed M&S plan. Knowledge of the best practices can inform that planning, improve the cost-effectiveness of an organization's M&S activities, and benefit others that may reuse that organization's M&S artifacts.

WORK NEEDED: The identification of best practices requires mining the literature for articles on the use of M&S to support Marine Corps activities and consulting with expert M&S practitioners with in-depth experience in the Marine Corps arena. Best practices should address the rigorous analysis of M&S requirements; M&S project plan templates to support implementation of M&S; considerations to maximize cost-effective reuse across the life cycle; identification of alternative solutions to meet organization requirements and selection of the best course; management of data and software; verification, validation, and accreditation (VV&A); and model initialization, execution, and post-run analysis. Cautions against inappropriate use should likewise be included.

LEAD: MCMSMO

SUPPORT: Marine Corps M&S IPT

PRODUCT: Best practices web page.

COMPLETION GOAL: 1st Qtr FY10

3.4.3. TASK 4.3: Facilitate the Sharing of Reusable Resources

DEFICIENCY: Although highly desirable whenever it can meet a requirement more cost-effectively, the reuse of M&S resources continues to be sparse. Reusable resources include tools, data and services. A process that supports cooperative sharing is needed to leverage the benefits of M&S reuse.

WORK NEEDED: M&S resource sponsors must ensure their applications are loaded into a common modeling & simulation resource repository. A complete centralized database of Marine Corps M&S applications will improve awareness of potential reuse opportunities. The M&S resource sponsors must also be available to support inquires into their applications and to assist in any support to an organization reusing its assets. Sponsors must also provide a mechanism to allow potential M&S users to discover reusable resources. This mechanism should assist in the discovery of reusable applications by other M&S users.

LEAD: MCMSMO

SUPPORT: Marine Corps M&S IPT

PRODUCT: M&S Resource Sponsors listing all their applications on a Marine Corps Resource Repository, the Navy Modeling and Simulation Resource Repository or the best approach determined as part of this task. M&S Resource Sponsors develop a M&S page to their organization's website to provide information on their M&S assets and their use.

COMPLETION GOAL: 2nd Qtr FY10

3.4.4. TASK 4.4: Promote Verification, Validation, and Accreditation (VV&A).

DEFICIENCY: The credibility, or trustworthiness, of M&S is essential to its acceptance to support Marine Corps decisions. The inability to clearly understand what VV&A has been accomplished has degraded the usefulness of much M&S. Marine Corps organizations don't understand clearly what should be VV&A'ed, how it should be done and how it should be documented.

WORK NEEDED: Clarification is needed to support Marine Corps documentation of M&S verification, validation, and accreditation. Recognizing that VV&A desires may vary across the M&S communities, being able to describe such attributes in a common way, with standard terms, will help model users to comprehend what has been accomplished in this area in order to better articulate associated model capabilities and limitations with decision makers. This will facilitate reuse and improve the overall understanding of M&S strengths and weaknesses.

LEAD: OAD

SUPPORT: MCMSMO, & MCOTEA

PRODUCTS: Marine Corps M&S VV&A clarification document and a web page on the MCMSMO web site identifying best practices DoD and Naval guidance, and links to examples.

COMPLETION GOAL: 1st Qtr FY10

3.5. OBJECTIVE 5: SHAPE THE WORKFORCE

3.5.1. TASK 5.1: Define Marine Corps Workforce M&S Competencies

DEFICIENCY: M&S users often are not adequately trained and shift M&S planning and oversight to others. M&S developers often lack sufficient understanding of modeling best practices, abstract techniques, context dependencies, and so forth. Better education and training can mitigate these problems. An important first step towards improving the Marine Corps workforce's M&S knowledge and skills is to understand what competencies the workforce should have.

WORK NEEDED: Marine Corps M&S IPT develop education, training, and experience requirements.

LEAD: MCMSMO

SUPPORT: Marine Corps M&S IPT

PRODUCT: Education web page on MCMSMO website with M&S competencies.

COMPLETION GOAL: 3rd Qtr FY10

3.5.2. TASK 5.2: Assemble and Evolve Marine Corps M&S Body of Knowledge

DEFICIENCY: The body of knowledge for M&S support to Marine Corps is deficient and not very well managed. There is no authoritative, up-to-date, consistent M&S knowledge base for the Marine Corps. Bits and pieces of knowledge and information are found in many places, provided by many different sources.

WORK NEEDED: An authoritative body of M&S knowledge and information for the Marine Corps is needed. It needs to be established and maintained for convenient and ready use by Marine Corps organizations. Consideration should be given to providing information of value via the Navy's Modeling and Simulation Resource Repository (MSRR) and a MCMSMO web page. The body of knowledge must be sufficiently robust to support planning and M&S use across the Marine Corps communities

LEAD: MCMSMO

SUPPORT: Marine Corps M&S IPT

PRODUCT: Use of Navy's MSRR and the MCMSMO websites.

COMPLETION GOAL: 2nd Qtr FY10 (initial version then continuous)

3.5.3. TASK 5.3: Educate and Train the Workforce

DEFICIENCY: Not enough M&S expertise exists in the Marine Corps workforce. Marine Corps community managers and staffs are often uninformed about M&S capabilities and limitations. Few formal opportunities exist for the Marine Corps workforce to be enlightened on the new and emerging M&S capabilities or to achieve a required M&S competencies.

WORK NEEDED: Identification of existing DoD and service online and resident M&S courses to be leveraged to deliver the M&S knowledge. Provide M&S knowledge via identifying conferences, workshops and assist visits. Each of these should be reviewed by MCMSMO and M&S IPT to identify the most relevant and valuable resources

LEAD: MCSC

SUPPORT: Marine Corps M&S IPT

PRODUCT: M&S training and education web page on the MCMSMO website. Also, identify training sponsored by MCMSMO or other resources.

COMPLETION GOAL: 4th Qtr 2009 (initial version, then continuous)

4. RESOURCES

Lead organizations should leverage current activities and resources to complete their assigned actions. In any case where available resources are insufficient, the lead organization is responsible for identifying resources needed to accomplish the assigned action through the Planning, Programming, Budgeting, and Execution process. While some tasks are at a Marine Corps level, other tasks will be worked through DoD bodies currently undertaking the task and the Marine Corps will lend its support to the effort.

5. PRIORITY

To provide a readily accessible, prioritized, common and cross-cutting list of gaps, the above tasks have been prioritized by the Marine Corps M&S IPT. This prioritized list will enable Marine Corps M&S representatives to provide a consistent message to the various DoD M&S bodies that the Marine Corps M&S communities, MCMSMO, and the MCCDC Senior Analyst sit on to include the DoD M&S IPT and flag level DoD M&S Steering Committee when discussions of M&S gaps and requirements take place.

Priority	Task	Lead	Title
1	4.4	OAD	Promote Verification, Validation, & Accreditation (VV&A)
2	3.1	MCMSMO	Promote Marine Corps M&S Needs
3	2.2	TECOM	Support Standards for Distributed Environments
4	1.2	MCSC	Propose M&S Procurement Guidelines
5	5.2	MCMSMO	Marine Corps M&S body of knowledge
6	4.3	MCMSMO	Facilitate the Sharing of Reusable Resources
7	4.2	MCMSMO	Make Available M&S Best Practices
8	4.1	MCMSMO	Provide Access to M&S Expertise and Information
9	3.3	MCMSMO	Fund and Manage Cross-Cutting Needs
10	3.2	MCMSMO	Improvement of Tools, Data and Services
11	2.1	MCSC	Support Open Source Standards
12	5.3	MCSC	Educate and Train the Workforce
13	2.3	MCSC & TECOM	Promote Marine Corps Distributed Compliancy
14	1.3	MCSC	Provide Multilevel Security Guidelines
15	2.5	MCMSMO	Establish Metadata
16	1.1	MCMSMO	Support DoD M&S Management.
17	5.1	MCMSMO	Define Marine Corps Workforce M&S Competencies
18	2.4	TECOM	Provide Distributed Event Services

6. FUNCTION

The Marine Corps IPT Master Plan is a living document and will be updated based on task completion, priority changes or other influences. The Master Plan will be reviewed and updated at least once every other year. The progress of the Marine Corps IPT will be assessed by its ability to complete the tasks on time.